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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,449	02/05/2004	Hiroshi Iwai	2004_0138A	3832

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EXAMINER

SHARMA, SUJATHA R

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/771,449	IWAI ET AL.	
	Examiner	Art Unit	
	Sujatha Sharma	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 24-33 is/are rejected.
- 7) ☒ Claim(s) 17-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/2/04, 8/24/04, 9/27/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,3,11,12,24,25,27 are rejected under 35 U.S.C. 102(e) as being anticipated by Hwang [US 6,625,469].

Regarding claim 1, Hwang discloses a portable wireless communication device. Hwang further discloses the portable radio communication apparatus comprising a housing:

- wherein at least one part (704 in Fig. 7 and 904 in Fig. 9) of at least one of said housing (104 in Figs. 1,2,7) is formed as a housing electrical conductor portion by an electrically conductive material (see col. 7, lines 10-20 where the antenna is connected to the receiver/transmitter circuit to receive and transmit signals thus indicating that the one part i.e the antenna part 904 in Fig. 9 is made of electrically conductive material)
- wherein said housing electrical conductor portion is connected with a radio communication circuit of said portable radio communication apparatus so as to operate as at least one part of an antenna of said radio communication circuit. See Figs 7 and 9; and

col. 7, lines 10-20 where the electrical conductor portion i.e the antenna 904 is connected to the receiver/transmitter circuit to receive and transmit signals

- wherein said portable radio communication apparatus further comprises a boom portion (see element 110 in Figs. 1-3 and 7-9) coupled with said housing at least at two positions (at 710 and 702 in Figs 7,8) so as to provide at least one penetrating hole between said housing and said boom portion (710,718 in Figs. 7,8 and col. 7, lines 27-67).

Regarding claim 3, Hwang discloses a method wherein said portable radio communication apparatus is a straight type portable radio communication apparatus. See Figs. 1,2

Regarding claims 11, Hwang discloses an apparatus wherein the upper housing includes an upper first housing portion and an upper second housing portion, and wherein at least one of said upper first housing portion and said upper second housing portion is formed as a housing electrical conductor portion by an electrically conductive material so that said housing electrical conductor portion operates as at least one part of the antenna of the portable radio communication apparatus.

Regarding claim 12, Hwang discloses a lower housing wherein said lower housing includes a lower first housing portion and a lower second housing portion, and wherein at least one of said lower first housing portion and said lower second housing portion is formed as a housing electrical conductor portion by an electrically conductive material so that said housing electrical

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conductor portion operates as at least one part of the antenna of the portable radio communication apparatus.

Regarding claim 24, Hwang discloses a method wherein said boom portion is coupled with said housing so as to be laterally symmetric relative to a width direction of said portable radio communication apparatus. See Figs 1-3 and 7-9 wherein the boom portion 110 is laterally symmetric to the width of the phone.

Regarding claim 25, Hwang discloses a method wherein at least one part of said boom portion is made of an electrically conductive material. See col. 7, lines 10-20 where the antenna is connected to the receiver/transmitter circuit to receive and transmit signals thus indicating that the one part i.e the antenna part 904 in Fig. 9 of the boom portion 110 is made of electrically conductive material)

Regarding claim 27, Hwang discloses a method further comprising at least one antenna element (904 in Fig. 9) provided in said boom portion (110 in fig. 9) and connected with said radio communication circuit (see fig. 9)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2,28,29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] in view of Ritter [US 6,839,569].

Regarding claim 2, Hwang discloses all the limitations as claimed. However he does not disclose a method wherein the said antenna is an unbalanced antenna.

Ritter, in the same field of endeavor, teaches the use of an unbalanced antenna wherein the length of the antenna elements 21, 22 in Fig. 1 are correspondingly different in order to tune the antenna elements to their optimal operating frequencies. See col. 2, lines 3-21.

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the unbalanced antenna as taught by Ritter in Hwang's invention in order to operate the antenna in different frequencies.

Regarding claim 28, Ritter further discloses a method wherein the apparatus further comprises a further switching device for selectively switching over between at least one antenna element connected with said radio communication circuit and said antenna including said housing conductor portion. See col. 2, lines 3-11 and col. 3, lines 30-32

Regarding claim 29, Ritter further discloses a method wherein the apparatus further comprises a plurality of antenna elements(21,22 in Fig. 1) provided in said boom portion (25 in fig. 1), said plurality of antenna elements being connected with said radio communication circuit, and having electric lengths different from each other, respectively. See col. 1, lines 51-64 and col. 2, lines 3-

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] in view of in view of Hofman [WO 99/04500].

Regarding claim 4, Hwang as treated in claim 1 discloses all the limitations as claimed. However, he fails to teach a slide type portable radio in which an upper housing and a lower housing are slidable through a sliding mechanism and wherein at least one part of at least one of the upper housing and the lower housing is formed as a housing conductor portion by an electrically conductive material.

Hofman in figure 5 discloses a slide type portable radio in which an upper housing and a lower housing 19 are slidable through a sliding mechanism (groove between the upper/lower housing) and wherein at least one part of at least one of the upper housing and the lower housing is formed as a housing conductor portion by an electrically conductive material 9 (abstract).

Therefor it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide a slide type portable radio in which an upper housing and a lower housing are slidable through a sliding mechanism and wherein at least one part of at least one of the upper housing and the lower housing is formed as a housing conductor portion by an electrically conductive material as taught by Hofman in Hwang's invention for the purpose of sliding the upper/lower housing relative to one another as needed for antenna operation.

6. Claims 2,5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] in view of in view of Ying [US 6,307,511].

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Regarding claim 2, Hwang discloses all the limitations as claimed. However he does not disclose a method wherein the said antenna is an unbalanced antenna.

Ying, in the same field of endeavor, in figures 4-7 disclose the antenna 60 is an unbalanced type antenna wherein the length of the antenna elements are correspondingly different in order to tune the antenna elements to their optimal operating frequencies.

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the unbalanced antenna as taught by Ying in Hwang's invention in order to operate the antenna in different frequencies.

Regarding claim 5, Ying in figures 4-7 disclose a folding radio in which an upper housing 12 and a lower housing 14 are foldable through a hinge portion 26, and wherein at least one part of at least one of the upper housing and the lower housing is formed as a housing electrical conductor portion by an electrically conductive material (column 2, lines 24-26), and electrical conductor patterns/portions 62,64 (figures 6-7, column 2, lines 24-32).

7. Claims 6,7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] in view of Yagi [2003/0184494].

Regarding claim 6,7, Hwang as treated in claim 1, disclose all the limitations as claimed.

However, he does not disclose a method wherein said housing electrical conductor portion is made by forming an electrical conductor layer on a dielectric housing which is at least one part of said housing.

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Yagi, in the same field of endeavor, teaches a method wherein said housing electrical conductor portion is made by forming an electrical conductor layer on a dielectric housing which is at least one part of said housing. See paragraph 24

Therefor it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate the teaching of Yagi in Hwang's invention in order to prevent bias from adversely affecting the antenna characteristics as suggested by Yagi [paragraph 24].

Regarding claim 26, Yagi further discloses a method wherein the dielectric material used in the one part of the housing is an elastic resin material. See paragraph 24.

8. Claims 8,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] and Yagi [2003/0184494] in view of Ying [US 6,307,511].

Regarding claims 8,9 Hwang and Yagi discloses all the limitations as claimed. However he does not disclose a method wherein the said antenna operates in a plurality of frequency bands.

Ying, in the same field of endeavor, in figures 4-7 disclose the antenna 60 is an unbalanced type antenna wherein the length of the antenna elements are correspondingly different in order to tune the antenna elements to their optimal operating frequencies.

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the unbalanced antenna as taught by Ying in Hwang's invention in order to operate the antenna in different frequencies.

9. Claims 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] and Yagi [2003/0184494] in view of Yaginuma [JP 2001156898].

Hwang and Yagi have been discussed above but fail to teach a slot or slit which are formed in the said conductive layer.

However, Yaginuma teaches a slot or slit which is formed the conductive layer 3 (figures 1-2, 4-5, 7, 11).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide a slot or slit which is formed the conductive layer as taught by the Yaginuma in modified Hwang's invention for the purpose of providing a lighter portable radio assembly (abstract).

10. Claims 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] and Ying [US 6,307,511] in view of Ali [US 6,885,880].

Regarding claim 13, Hwang as treated in claim 5 discloses all the limitations as claimed but fail to teach the insulated electrical hinge conductor portion is connected with the radio communication circuit of the portable radio so as to operate as at least one part of the antenna.

Ali, in the same field of endeavor, discloses the hinge conductor portion 172,174 being connected with the radio communication circuit 190 of the portable radio so as to operate as at least one part of the antenna (column 5, lines 24-40).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide modified Hwang with the insulated electrical hinge conductor portion being connected with the radio communication circuit of the portable radio so as to

operate as at least one part of the antenna as taught by Ali for the purpose of providing multi-mode frequency bands.

11. Claims 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] and Ying [US 6,307,511] in view of Philips [US 2003/0210206].

Regarding claim 14, Hwang and Ying disclose all the limitations as claimed. However, they fail to disclose a method wherein at least one part of said hinge portion is formed as a hinge electrical conductor portion by an electrically conductive material so that said hinge electrical conductor portion operates as a parasitic element of the antenna of said radio communication circuit.

Philips, in the same field of endeavor, teaches a method wherein parasitic element is connected through hinge to the tuning circuit and thus the hinge with this element acts a parasitic element of the antenna of said radio communication circuit.

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide the teachings of Philips to modified Hwang for the purpose of providing multi-mode frequency bands.

12. Claims 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] and Ying [US 6,307,511] in view of Ali [US 6,885,880] and further in view of Shibata [US 7,084,919].

Regarding claim 15, Hwang as treated in claim 13, discloses all the limitations as claimed but fail to disclose a portable apparatus wherein said hinge portion is made to be rotatable in at least biaxial directions.

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Shibata, in the same field of endeavor, teaches a mobile phone wherein said hinge portion is made to be rotatable in at least biaxial directions. See Fig. 3 and col. 9, line 60 – col. 10, line 3. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide the teachings of Shibata to modified Hwang for the proper operation of the antenna device.

13. Claims 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] and Ying [US 6,307,511] in view of Ali [US 6,885,880] and further in view of Kimura [JP 10064648]

Regarding claim 16, Hwang as treated in claim 13, disclose all the limitations as claimed but fail to disclose the apparatus further comprising an electrically insulating layer formed on said hinge portion.

Kimura, in the same field of endeavor, teaches a mobile device with an electrically insulating layer formed on said hinge portion. See abstract. And Figs. 1a,1b, 2a and 2b and the insulation portion 23 on the hinge type connector.

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide the teachings of Kimura to modified Hwang in order to enable transmission of high frequency signal from antenna while preventing leak of electromagnetic wave and also for the easy operability of the hinge.

14. Claims 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang [US 6,625,469] in view of Chao Cheng [US 5,991,643]

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Regarding claim 30, Hwang discloses all the limitations as claimed but fail to disclose an external antenna provided in said housing.

Chao Cheng teaches the use of an external antenna (14 in Fig. 1) in the said housing (12 in FIG.1)

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide the use of an external antenna as taught by Chao Cheng in Hwang's apparatus in order to increase signal communication efficiency (see col. 1, lines 29-32).

Regarding claim 31, Chao Cheng further discloses a method of switching between the external antenna and the built-in antenna. See col. 2, lines 16-35

Regarding claim 32, Chao Cheng discloses a built-in antenna (see 15-17 in fig. 1) in the said housing. See col. 2, lines 6-14

Regarding claim 33, Hwang discloses all the limitations as claimed but fail to disclose comprising a still further switching device for selectively switching over between said built-in antenna and the antenna including said housing conductor portion.

Chao Cheng teaches a method of switching between the external antenna and the built-in antenna. See col. 2, lines 16-35

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to provide the method switching between antennas as taught by Chao Cheng

in Hwang's apparatus in order to increase signal communication efficiency (see col. 1, lines 29-32).

Allowable Subject Matter

15. Claims 17-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 17-23 is directed towards a method wherein the mobile apparatus comprises of a plurality of reactance elements having a plurality of reactance values different from each other, respectively; and a switching device for selectively switching over said plurality of reactance elements so as to connect selected one of said reactance elements with said housing electrical conductor portion. Further the invention discloses a method wherein the switching occurs either in the open state or closed state of the mobile device.

The invention is also directed to a method wherein said housing electrical conductor portion is made of one of a dielectric material and a magnetic material, and wherein said housing electrical conductor portion is connected with said radio communication circuit through an electrical insulator having a predetermined capacitance so that a radio signal from said radio communication circuit is fed through the capacitance of the electrical insulator to said housing electrical conductor portion.

The apparatus in the invention further comprises a thin-film-shaped electrically insulating sheet formed on the upper housing having said housing electrical conductor portion, said thin-film-shaped electrically insulating sheet being made of one of a dielectric material and a magnetic material.

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The prior art individually or in combination does not render the above underlined unique features obvious.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kurz [US 6,075,500] Compact antenna means for portable radio communication devices and switchless antenna connecting means therefor

Gartrell [US 2005/0183242] Handle for mobile station and method of using the same

Shapiro [US 7,096,046] Luminescent and illumination signaling displays using a mobile communication device with laser

Busch [US 2001/0020335] Ergonomic, interference signal reduction position measurement probe for mutual alignment of bodies

Peng [US 6,819,295] Dual frequency anti jamming antenna

Perrotta [US 6,246,374] Passive flip radiator for antenna enhancement


Silzer [US 2004/0001022] Endurable sports PDA with communications capabilities and accessories therefor

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sujatha Sharma whose telephone number is 571-272-7886. The examiner can normally be reached on Mon-Fri 7.30am - 4.00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Sujatha Sharma
November 9, 2006